

SUPPLEMENT.

The Itinerary Journal.  
RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1563.—Vol. XXXV.]

LONDON, SATURDAY, AUGUST 5, 1865.

STAMPED.... SIXPENCE.  
UNSTAMPED. FIVEPENCE.

LAND INVESTMENTS IN THE UNITED STATES.

WEST VIRGINIA:—PAST—PRESENT—AND FUTURE.

By C. S. RICHARDSON.

Although it has been long known that the western part of the "Old Dominion" contained mineral wealth far superior to the eastern portion, yet there has always been a want of confidence among capitalists to largely invest in its lands; not that they entertained any doubts on the mineral values they contained, for this has been set at rest beyond all controversy for many years past, but from unequal or unjust administration of the laws and extreme political differences, while taxation was uniform throughout the State, or supposed to be, although the "negro stock" was never fairly taxed; yet the internal improvements were almost exclusively confined to the eastern part of the country. There can be no better proof of this than the total absence of central lines of communication, for with the exception of two short branches of the Baltimore and Ohio Railway, which cross a narrow portion of the State at its northern end, there is not a railway in operation from the Alleghany Mountains to the Ohio River; while in the East the country is intersected with roads in every direction. The same disparity exists in its lines of water communication. The great James River and Kanawha Canal, as projected by and commenced under the auspices of George Washington, and intended to connect the fertile valley of the Ohio with that of the James and Atlantic seaboard, was never carried into the western counties, for after reaching the Blue Ridge, somewhere near Christiansburg, in Montgomery county, there it stopped, although its continuance promised a greater amount of wealth and rapid extension of trade and commerce than all the other improvements of that day put together. Many persons holding rigid South side views may say, How was it possible all these things could have been done in one generation of men? The answer could be given—in the same way as it was done in Ohio and Pennsylvania. Yes, but those were free States. Ah, there's the hitch! On this hangs the secret. Now, the apathy or indifference which the eastern politicians (who really held the reins of Government in their own hands) treated the landed interests of the western counties was long considered unjust, and sometimes considered tyrannical, for the western men, being in the minority, were powerless and could not help themselves; it was, therefore, but natural a contentious feeling should arise amongst them. Thus matters stood, if we are correctly informed, about the year 1845, when a desire became prevalent for a separation of the State, making the Alleghany range the line of division; the project, however, met with no support outside of the western counties, and, moreover, was violently opposed by the slaveholding portion of those who lived within them. It is but reasonable to suppose that the liberal minded men of the country, men whose views were for progress and civilization, men who watched and saw, year after year, the adjoining free State of Ohio growing in wealth and opulence, with not one-half the natural resources that they had at command, should fret and chafe under the bondage they were held in by their fellow-citizens in power; but so it was, and the only consolation they had was to patiently wait "the good time coming." This, in course of years, came at last; but it came with such a dreadful tempest of human passions that shook the nation to its very centre. In April, 1861, Old Virginia seceded from the Union; its legislators argued and tried to convince the people that they had a perfect right to do so; the ordinance was passed, and from that time disintegration became the order of the day. The western men, being now left comparatively free to act for themselves, took up the same line of argument so sedulously promulgated by their eastern brethren, and decided that if the State of Virginia had a right to secede from the Union, they, the western counties, by the same rule, had an inherent right to secede from the State. The conception was a bold one, and they decided to secede; they founded a Government of their own, but their course was conducted with wisdom. They struck out a line of policy that is to endure for all time. No secret conceals the first page of their annals. It was a clean sheet, with the plain matter of fact heading, "Know all ye men by these presents." Although the first offspring of the revolution, its people conceived not with the revolutionists. They pertinaciously clung to the good old Government of their common country, that Government which now proclaims "equal rights to all its citizens, whatever be their race or colour." Look at the terrible ordeal through which they have passed. Four years of desolating war never dampened the ardour of this people for a single day; they persevered, they fought, and conquered; but ere the boom of their cannon had ceased to reverberate amongst their forest-clad mountains their loudest aspirations were realised; they were manly, and with the return of peaceful times the districts in which they are located will present a scene of industry. Iron ore of various descriptions, excellent in quality and profuse in quantity, are found throughout. The Big Kanawha, the finest river in the State, is navigable for 100 miles; several steamboats ply daily up as far as Charleston, 60 miles from its mouth, while smaller steamers run being rapidly improved by dredging the shoals, so that in two years hence all the obstructions hitherto so detrimental to its carrying trade will be removed. Kanawha is chiefly celebrated for its extensive salt works, which are amongst the largest in the United States; when all the works are in full operation they are capable of producing 2,000,000 to 3,000,000 bushels of salt annually. Coal and Cannel oil, are found in some considerable extent, and preparations are making for their extension. Charleston, the county seat of Kanawha, is a town of 3000 inhabitants; it carries on a brisk trade—boat building and coopers, which are adjuncts of the salt manufacture, merchants are all prosperous, as an index of which it has been affirmed there has not been more than three cases of positive bankruptcy during the past nine years. Iron-ore factories, are very much wanted here; an immense trade could be profitably carried on if such were once permanently established. There is a splendid opening also on the river; should one be established, with an efficient flotilla, they could be insured at about the rate of one per cent. Charleston must become the great trade centre, and it traverses a thinly-settled mountainous country. The timber of this section is very fine and abundant; its head branches are in Greenbrier county, a place celebrated for its medicinal waters; here is situated that place of fashionable resort, White Sulphur Springs, the medicinal virtues of which are proverbial throughout the country. 130 miles, is a rapid current of the Kanawha; it runs in a south-easterly direction for water; it contains the most productive Cannel mines in the State; those of Peyton's are noted for the variety, quality, and quantity of their coals. These lands yield 25,000 tons to the acre above water level, and, as far as yet known by borings in the Kanawha Valley, 50,000 tons below. A railroad is now in contemplation to connect the Kanawha and Cannel with the heart of this coal field; when completed, 2,000,000 tons of coal, Guyan is long river; it enters the Ohio near the extreme western corner of the State; it contains heavy beds of iron ore, and some coal. The finest shipbuilding timber—white oak—ever found in this country remains yet undisturbed in its back forests. We have

recently returned from an exploring expedition on its upper branches, and can give a very favourable account of the "oil prospects," having met with numerous gas and oil springs during our journey. The most interesting feature of the country, however, was the stately timber of its deep valleys. The tulip-poplar, a wood in great request here, is found of colossal size; we have seen trees from 5 to 6 ft. diameter at the butt, nearly 100 ft. high to the first limb, and as straight as a line. At one place, in Big Ugly Creek, a branch of Mud River, we estimated there might be cut 5000 cubic feet of marketable timber to the acre. The soil of the bottom land is exceedingly rich, and as the climate is so very mild every kind of agricultural product may be raised to advantage. The Big Sandy River forms the dividing line between the two States of Virginia and Kentucky; it abounds in coal, iron, cannel, oil, salt, timber, and cattle. No great developments have yet been made in its minerals; several mines, however, have been opened, and they are found rich and productive. The three last-named rivers have all been made navigable, by locks and dams, for 30 or 40 miles into the interior; but they are of very uncertain utility, in consequence of the impetuosity and irregularity of their currents; no works, therefore, can be permanently carried on at a profit whose produce depends for its exportation on the water of these rivers. Wheeling, the present capital of the State, is a city of considerable importance; it is the terminus of the Baltimore and Ohio Railway, has several ironworks, foundries, engine shops, mills, and factories of various kinds. As a commercial entrepôt it is not well located, being at the very extreme northern corner of the State; it has a prosperous and thriving trade, but which is far more due to the industry, perseverance, energy, and intelligence of its citizens than to its location. With all its smoke, and clatter of its noisy streets, we like wheeling. There is a kind of freedom, openness, and cordiality pervading all classes of its society which is quite refreshing; its hotels are commodious; the McClure House is a fine establishment, certainly one of the very best in the State; charges moderate, with excellent accommodation. To the tourist we would say, do not miss staying a day or two at Wheeling; you will be pleased with its beautiful scenery, its unique, pretty suspension bridge that spans the Ohio River. A ramble on the hills, and a peep into the numerous coal and iron mines, with a final stroll through its workshops, and among the numerous steamers that line the Levee, will give you a good insight to what this city is, and what several others in West Virginia may some day become. The foregoing cursory portraiture of West Virginia's mineral resources is too condensed for the reader to justly appreciate them; he will, however, not fail to see in them the primary elements of national wealth, and that their utilisation is only in abeyance on their development. Oil and oil making are now the popular speculations of the day. The eminent success that attended the opening of the petroleum wells at Burning Springs, on the Little Kanawha River, has caused quite a rush of investors from all parts of the Eastern States. Individual fortunes have been made, and many are in anticipation. All is activity, eagerness, and bustle around this oleaginous region for many miles, and land in the vicinity of a successful "strike" rises to a most fabulous price. We have known creek lands, which six years ago would have been considered dear at \$5 per acre, and ready purchasers at \$5000. At the present time there cannot be less than 300 wells in course of sinking in different parts of the country, and new companies are forming almost every day. The yield of petroleum is not great from any single well. Very few are flowing wells. Pumping must be resorted to in 90 cases out of 100. Every one which is successful thus gives a little, for, like the lean cows on a winter dairy farm, "the milking of many teats brings a big bucket full at last," so the pumpings from numerous wells, when sent to market, make a considerable bulk. These operations are not confined to any special locality; they extend from the Monongahela to the Kanawha Valley. Even the mountain districts are not left unperched. We have this past week heard of several new strikes (as the discovery of oil is called when first tapped in the bore); they are in widely different directions, and if the reports are verified by facts the well-being of the State will have a great expansion. Oil, however, is a purely speculative enterprise; its profits may be very great, or nil. But Cannel oil making is a certainty; with prudent management, economy, good coal, and ready transportation, a remunerative profit may invariably be realised. Eastern capitalists know this, hence there is an enquiry for good Cannel lands all over the State, and we know of no better or safer investment, for it is certain such lands will never be less, while there is every probability of their rapidly advancing in price. The bituminous coal trade is about having a new start; several companies have been formed, and some of them got into operation. This article, in connection with the manufacture of iron, should, and we believe eventually will, constitute the chief staple of the State; why it has not hitherto been made so must be attributable to those lamentable political conditions noticed at the commencement of this paper. The salt trade is not very lively just now. The Southern trade for the past four years has been almost cut off; the blockade, however, is now raised, and the restrictions that have so long fettered the export trade will be speedily removed; then the old salt manufacturers may once more pursue "the smooth and even tenor of their way." The timber trade is almost at a stand, although the demand is enormous; this arises from want of capital, and the absence of lumbermen and other hitherto engaged in this line of business; the war demands have drawn largely on this class of labourers, but they were not vigorously while they were away, and struck deep at the roots of that evil tree "which bringeth forth not good fruit." Their task is now done; the rifle is being thrown aside, and once more giving place to that harbinger of civilisation, the axe; long may they wield it in peace, and we hope never again have to apply it to any other demolition than that of the forest. We now come to a subject the most engrossing of all, one on which the vitality of the new State's progress in wealth chiefly depends, and one in which both European and American capitalists are equally interested—the West Virginia Central Railroad. This important undertaking, for which an Act has recently passed the Legislature, is to go from Charleston to Fairmont, where it will intersect four other lines; its course principally lies the Valley of the Elk, although it taps the Courthouse town of each county through which it passes; it strikes through the very heart of the great mineral region of the country, and when completed will open up thousands of industrial works of which the present generation have no conception; it is alike in its advantages to the farmer, the miner, the manufacturer, the merchant, the capitalist, and the Government of the State. All will become the recipients of its favours, and all should come forward and liberally subscribe towards its immediate construction. Its length is about 130 miles; there are no expensive or difficult engineering works anywhere along its route. Its cost will be about \$1,000,000, and will take three years to complete, but low as this is done the traffic over each finished end of the line will pay common interest on the subscribed capital. The traffic tables, so far as estimated, show a working profit of 30 per cent.; this will afford a dividend of about 15 per cent. to the shareholders, and which may be increased as the trade of the country is opened up. With these prospects, which certainly look bright and encouraging, we will next turn our attention to—

THE FUTURE.—Our view in this instance can only be admitted speculatively, although the data is one of fact, for the "national," the germ of a country's greatness, is most unquestionably here, and that it is no myth is certain, for it can be seen and valued. It covers the surface of the land above, is inherent with and permeates the carboniferous rocks below; it only awaits investigation to bring conviction. Like Joshua of old, when urging forward his dubious troops, we would recommend his citation from the song of Moses, that "they should suck honey from the stony rock, and oil from the flinty rock." The aptitude of the quotation has lost nothing by the lapse of time, for if we may judge by the favour in which the "unclean element" is held at the present day, it certainly must have been a stimulant of the most potent kind. By the promised land on the other side of that Jordan was a much harder road to travel than our Jordan of the Ohio. Here no doubts or darkness rests upon it; no spy is required to secretly steal into the country to learn of its mineral wealth, for the people of this land openly say to both Jew and Gentile—Come, search, dig, delve, see, and judge for yourselves; your interest, like ours, is mutual; there is enough for all, and some to spare; we want participants in our common fortunes—come. Yes; they are coming. There is a "sign in the East." A gentle commotion is agitating the monetary community; the increasing enquiry for permanent investments means something significant. The geologist, engineer, surveyor, and land agent is quietly being sent to examine all the high ways and byways, and every nook and corner of the country; and their exploration will not be without its reward. It is somewhat unfortunate that our scientific reports have not hitherto been written in a practical manner; they have been loose, vague, unreliable, unsatisfactory, and, what is still worse, often embellished with mere fiction. We hope in future they will be compiled with more care, and contain nothing but facts. We are aware it is a hopeless task to try and please everybody; nevertheless, we must have the pros and cons of every question before we can render a just verdict. That for want of prudence, foresight, or discrimination, the most egregious errors have been perpetrated, and much to the detriment of the State. We will, however, pass them over; to mention them now would look invidious; we, therefore, refrain. Much yet lies before the people to do before they can realise the advantages of their present position. One subject, before all others, should engage the attention and elicit the wisdom of the Legislature—this is the land titles. Over 2,000,000 acres of the richest mineral lands of the country are subject to the conflicting claims of either old patents, tax title holders, junior patents, the squatters, or resident reputed owners. It is all a muddle; no one knows who are the real owners of West Virginia, and they never will know until a perfect survey and topographical map has been made of the entire State; then every man may know the limits of his own domain. Such a work, however, is too costly for individuals; it might be done by counties, but it should properly be done by the State. The doubt that hangs over the titles of the land is the greatest incubus the country has

to bear, and has done more to fetter the progress of development than anything else; nevertheless, the remedy is simple and certain. We would say to the Government, ascertain from each owner, or reputed owner, the extent of his claim; let him trace it on the county or township map, then tax him to the full amount. Let there be no blanks or open spaces unassessed. No man will long willingly pay the burdens on another man's land, and the actual virulence of the disease in a very short time will work out its own remedy. The land titles thus once made clear and indisputable, there is no safer medium for investment, and capital would flow into the country from all directions. Such is the opinion of men who have taken a careful and dispassionate view of the present status. Here they see a country without poor-laws or poor people, where labour has to solicit the favours of the labourer, a land where a beggar is looked upon as a phenomenon, and vagrancy as a crime. With a climate the most salubrious, healthful, and agreeable on the Continent, where neither the heat of summer or cold of winter is inconveniently excessive, and epidemics are unknown. This is a beautiful land. A new era is about to dawn on its existence. The people have a bright career before them. They start unencumbered with any material State debt; their unwavering loyalty to the general Government, their liberal sentiments as expressed and rendered in the great cause of universal freedom, has not only called forth the plaudits of our great statesmen, but secured to them a host of admiring and earnest friends in every civilised country, both at home and abroad. Such, then, is the political, social, and commercial horoscope through which we now view the present, and compute the prosperity and happiness of the future. Counter influences may somewhat retard her rapid progress, but our predictions will be sadly at fault if West Virginia does not eventually become one of the most attractive, influential, and prosperous States of the Union. 36, Pine-street, New York, and Charleston, Kanawha, June, 1865.

GALVANISED IRON AS A SHIPBUILDING MATERIAL.

It has long been admitted that, although iron is, undoubtedly, the most suitable material for the construction of ships, the readiness with which it fouls in sea water gives rise to much inconvenience; the consequence has been that almost innumerable compositions have from time to time been proposed to remedy the evil; yet the success obtained has been but very limited. A series of experiments have, however, recently been undertaken by Professor Crace-Calvert and Mr. Johnson, which seem to have led to the discovery of an effective remedy, and one which can be readily applied. The reliance which can be placed upon all experiments conducted under Prof. Crace-Calvert's supervision are too well known to need comment, it will, therefore, suffice to record the experiments themselves.

They took 20 square centimetres of each metal, which they cleaned with great care and attention, in order that the action of the sea water might have its full effect; then two plates of each metal were placed in separate glass vessels, and immersed in equal volumes of sea water. After one month the plates were taken out, and any compounds that had adhered to the surface carefully removed; the plates were then dried and re-weighed, and the loss estimated. To render their results of more practical value, they calculated the action of 100 litres of sea water upon 1 square metre of each metal, and found the amounts of metal dissolved to be—Steel, 29.16 grammes; iron, 27.37; copper (best selected), 12.96; copper (tough cast), 13.85; zinc, 5.66; galvanised iron (Johnson's process), 1.12; block tin, 1.45; and stream tin, 1.45 grammes. Of virgin lead and of common lead the quantity dissolved was merely a trace. The conclusions to which these results obviously lead are that steel is the metal which suffers most from the action of sea water, and that iron is most materially preserved from the action of sea water when coated with zinc, and, therefore, not only should iron exposed to the action of sea water be galvanised whenever this is practicable, but, in their opinion, it would amply repay shipbuilders to use galvanised iron as a substitute for that metal itself.

The extraordinary resistance which lead offers to the action of sea water naturally suggests its use as a preservative to iron vessels against the destructive action of that element; and although they are aware that pure lead is too soft to withstand the wear and tear which ships' bottoms are subjected to, still they think that an alloy of lead could be produced which would meet the requirements of shipbuilders. Feeling that experiments made with a limited amount of sea water might not be a fair criterion of the action of the ocean upon metals, they repeated their experiments upon plates of 40 centimetres square, which were immersed for one month in the sea on the western coast (Fleetwood), taking the precaution that they should be constantly beneath the surface of the water, and suspended by flax rope attached to a wooden structure, to prevent any galvanic action taking place between the plates and the structure to which they were attached. The amounts of metals dissolved were—steel, 105.31 grammes; iron, 99.30; copper (best selected), 29.72; zinc, 34.34; galvanised iron (Johnson's process), 14.42; lead (virgin), 25.69; and lead (common), 25.85 grammes.

It is to be remarked that the action was much more intense in this instance than when the metals were placed in a limited amount of water at the laboratory. These results are due, probably, to several causes acting at the same time—that the metal was exposed to the constantly renewing surface of an active agent; and that there was also a considerable friction exerted on the surface of the plate by the constant motion of the water, there being at Fleetwood a powerful tide and rough seas. What substantiates this opinion is that the lead plates undoubtedly lost the greater part of their weight, not by the solvent action of the sea water, but from particles of lead detached from them, in consequence of their coming in contact with sand and the wooden supports to which they were attached; but this cause of destruction having been observed with lead plates, it was afterwards carefully guarded against in the case of all the other metals.

Another series of experiments was likewise made, which cannot fail to prove of great value in connection with the application to ships' bottoms of copper and yellow metal sheathing—the action of sea water upon various brasses was carefully tested. They immersed for one month plates of various alloys in that fluid, and it was found that the action of 200 litres of sea water upon one square metre of surface was:—

Composition of the brasses.		Quantity of metals dissolved.	
Copper.	Zinc.	Iron.	Total.
Pure copper and zinc .. 60.0 .. 40.0 ..	0.579 ..	1.110 ..	1.687 ..
Commercial brass .. 68.0 .. 32.0 ..	0.579 ..	3.667 ..	4.246 ..
Monts metal (brass) .. 70.0 .. 30.0 ..	0.438 ..	4.226 ..	4.664 ..
Monts metal (brass) .. 62.0 .. 38.0 ..	0.501 ..	2.637 ..	3.138 ..
Prepared brass .. 60.0 .. 40.0 ..	0.501 ..	3.477 ..	3.978 ..

This table shows how very differently sea water acts upon divers brasses, and the influence exercised upon the copper and zinc composing them, by the existence in them of a very small proportion of another metal; thus, in pure brass the zinc is most rapidly dissolved (which, *en passant*, is the contrary to what takes place in galvanised iron), whilst it acts as a preservative to the copper. Tin, on the other hand, appears to preserve the zinc, but to assist the action of sea water upon pure copper. The great difference between the action of the sea water upon pure copper and upon Monts metal seems to us to be due not only to the fact that copper is alloyed to zinc, but to the small proportion of lead and iron which that alloy contains;



No. 2 level, Welcome reef, 230 feet deep, 496 tons; No. 2 level, deep, 390 tons; total, 3822 tons.

There was no doubt (continued the Chairman) that in the Clunes Mine they had been







COAL CUTTING MACHINERY.  
JAMES GRAFTON JONES'S PATENT.



A detailed technical drawing of a chain hoist. At the top, a large spool with a central hub and spokes is mounted on a frame. A chain is wound around this spool and extends downwards. The chain is connected to a long, vertical metal rod that has several small, rectangular blocks or weights attached to it at intervals. The rod is supported by a horizontal beam that is part of the main frame. The entire mechanism is designed for lifting heavy loads.

